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United States
Department of
Agriculture

**Soil
Conservation
Service**

Lexington
Kentucky

September 1985

Kentucky's Land Resources: Conditions and Trends

From The National Resources Inventory

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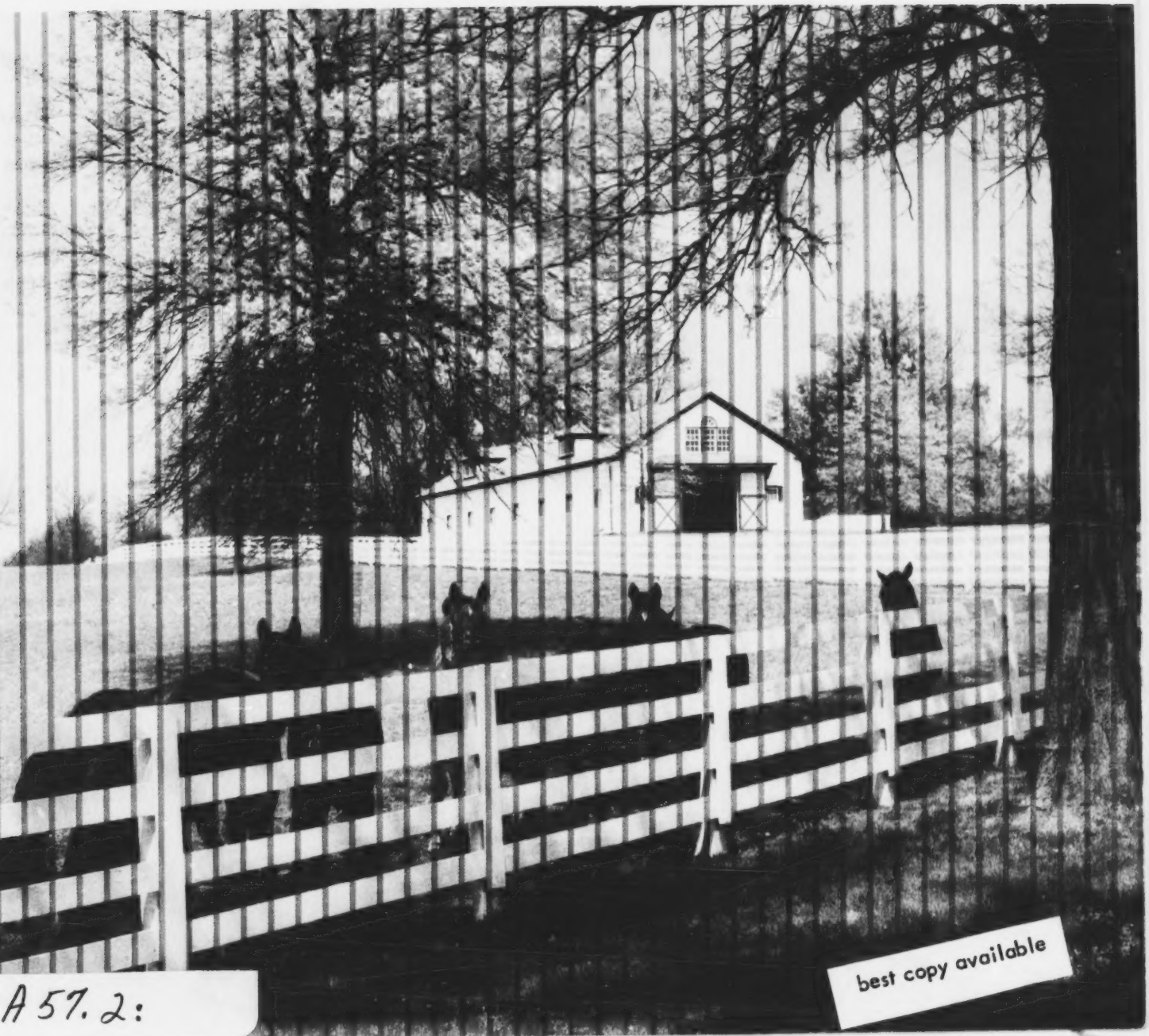

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INTRODUCTION

This publication presents selected information from the data collected as part of the 1982 National Resources Inventory (NRI) by the United States Department of Agriculture — Soil Conservation Service (SCS) under the authority of the Soil and Water Resources Conservation Act of 1977 (RCA). The purpose of this inventory is to provide information for the appraisal of the national resources as designated by the act.

The data from this inventory will assist in providing direction for SCS programs, multi-year plans, workload analyses, and targeting plans to help solve the resource problems as recognized by the RCA. This information will also be useful to local soil and water conservation districts, governmental agencies, planners and others interested in land use and conservation.

In Kentucky, employees of the Soil Conservation Service or others directed by SCS in cooperation with soil and water conservation districts, conducted the 1982 National Resource Inventory and collected data on about 6,900 randomly selected primary sampling units (usually 160 acres each). The total area sampled was about 4 percent of the area of Kentucky. The 1982 NRI is the latest and most comprehensive in a series of resource surveys including the 1958 Conservation Needs Inventory, the 1967 Conservation Needs Inventory, and the 1977 National Resource Inventory. The 1982 National Resource Inventory actually incorporates and updates the 1977 NRI.*

Additional information from this inventory can be obtained at any office of the USDA's Soil Conservation Service or local conservation district office.

*Discretion should be used when comparing 1982 data to that of the 1977 NRI. Trends of some components from 1977 to 1982 may seem unrealistic. Such discrepancies may be attributed to differences in definition and differences in the number of samples.

INVENTORY PROCEDURES AND ACCURACY

The 1982 National Resources Inventory (NRI) was designed to obtain natural resource data useable for analysis at the state and such multi-county levels as Major Land Resource Areas (MLRA). The NRI sample was selected giving particular attention to the MLRA's. Field data for the 1982 NRI was collected on nonfederal lands in all U.S. counties (except in Alaska) and the Caribbean Area by SCS field employees, contractors, and employees of other agencies under the direction of SCS. The 1982 NRI was designed to collect the most complete set of soil and water resource data possible consistent with staff and funding available.

The sample for the 1982 NRI consisted of nearly 350,000 Primary Sample Units (PSU's) nationally. The sample was designed and selected by the Statistical Laboratory at Iowa State University, in cooperation with the Soil Conservation Service.

The basic design criteria of the NRI sample can be expressed quantitatively in terms of coefficients of variation (degree of variation) of the land use acreage estimates. The sample was selected in a way guaranteeing that the coefficient of variation of an estimate is less than 10 percent if the land use comprises at least 10 percent of the land area within the MLRA under consideration. A 10 percent coefficient is comparable to 95 percent confidence interval in this design. Characteristics that are common and spread fairly uniformly over a region have smaller coefficients of variation than those characteristics that are rare and unevenly distributed. For a multi-purpose survey like the NRI, the sample sizes are generally such that common items are estimated more precisely than necessary and rare items less precisely than desired.

Estimates contained in this publication were obtained for a NRI data base collected at the county level, the primary sampling unit level, and specific points within each PSU. Data items collected at the county level on a census basis (not via sampling) were: total surface area subdivided into water area and land area, federally owned land, and rural land area in roads and railroads. Data items collected at the PSU level included the acreages in farmsteads, small built-up areas, small streams, small water bodies, and critical eroding areas. Data collected at the PSU level were area measurements. Also collected for each PSU were acres of urban and built-up land and of census water (water bodies larger than 40 acres). Most NRI data elements were collected at the point level (sample points within each sample PSU). All land uses were included at this level, so data for farmsteads, urban and built-up land, water areas, and rural transportation were collected at more than one level. The three levels of data were combined using a ratio estimation procedure. The sample data was statistically expanded to equal the nonfederal land area of the county as determined by the NRI County Base Data.

KENTUCKY'S MAJOR LAND USES AND TRENDS — 1967-1982

Kentucky's land use has changed since 1967. From 1967 to 1982, total agricultural land (cropland, pasture, and forest) decreased from 88 percent of the total land and water area to 84.9 percent. Water areas, federal land, and urban and built-up and other land uses (including farmsteads, other land in farms, mines, quarries, pits, small built-up areas, and other rural lands) increased in area; subsequently converting acres from agricultural uses. More than 3/4 million acres were converted to non-agricultural uses. Of this conversion, urban and built-up and other land uses increased more than 1/2 million acres; water areas increased about 200,000 acres; and federal land increased about 75,000 acres. This conversion represents a rate of about 135 acres per day to nonagricultural uses, and of this amount, conversion to urban and built-up and other land uses is about 90 acres per day.

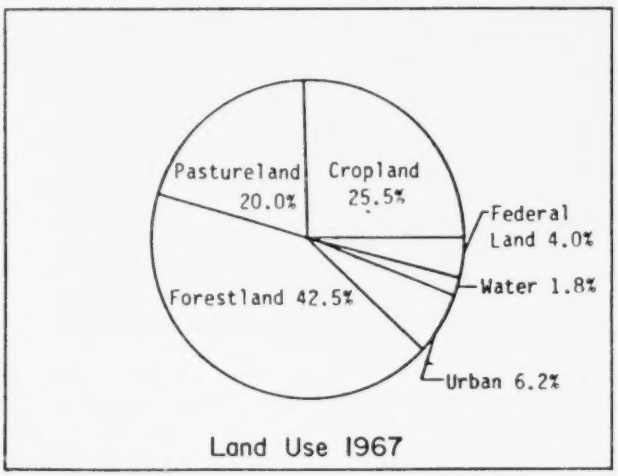
During this period, cropland decreased about 650,000 acres, forest land* decreased about 830,000 acres and pastureland increased about 715,000 acres.

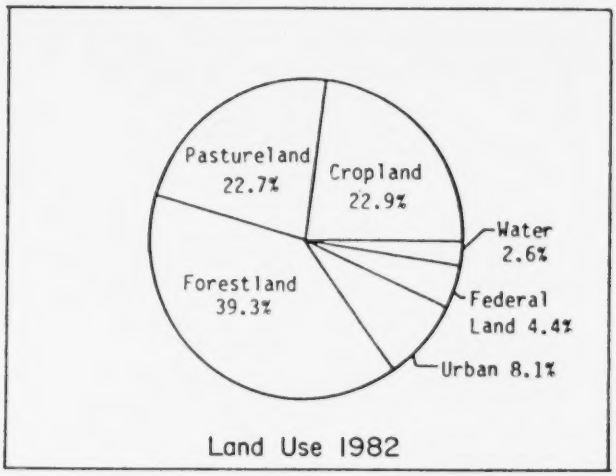
The following figures and tables compare the 1967 and 1982 land uses and land use shifts in Kentucky.

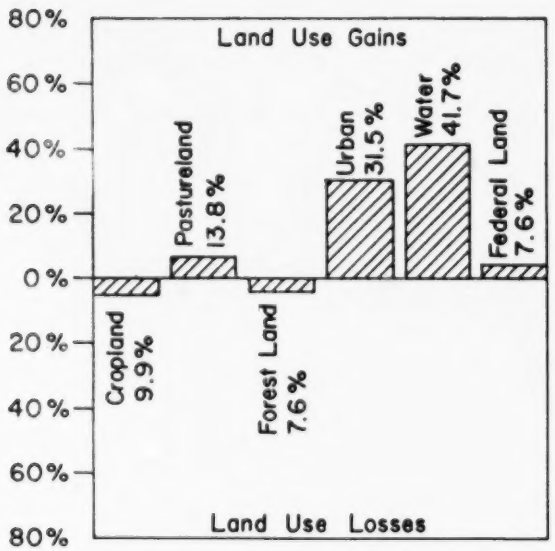
*The acreage of forest land is 10,158,200 as compared to 11,342,000 recorded in the 1975 Forest Resources Inventory by the U.S. Forest Service. This difference can be mostly explained by methods of data collection and interpretation and by definition of terms. For example, the National Resources Inventory did not include in forest land some pasture having greater than 10 percent canopy and wooded urban land.

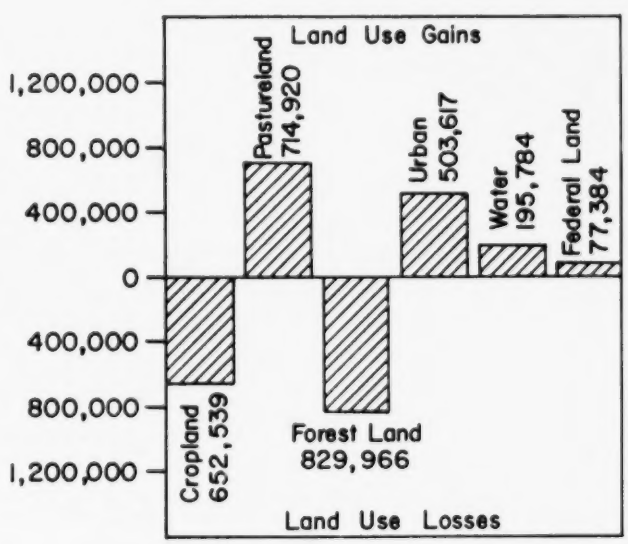
KENTUCKY'S MAJOR LAND USES AND TRENDS — 1967-1982

	1967 Acres	1967 Percent	1982 Acres	1982 Percent	Trends 1967-1982 Acres	Trends 1967-1982 Percent
Cropland	6,586,739	25.5	5,934,200	22.9	(−) 652,539	9.9
Pastureland	5,164,880	20.0	5,879,800	22.7	(+) 714,920	13.8
Forestland	10,988,166	42.5	10,158,200	39.3	(−) 829,966	7.6
Urban/Built-up & Other Land	1,596,283	6.2	2,099,900	8.1	(+) 503,617	31.5
Water	469,316	1.8	665,100	2.5	(+) 195,784	41.7
Federal Land	1,047,416	4.0	1,124,800	4.4	(+) 77,384	7.4









CAPABILITY & LAND USE TRENDS FOR RURAL NONFEDERAL LANDS

From 1967 to 1982, the overall acreage of rural nonfederal lands decreased. For that period, cropland decreased in all land classes; pastureland increased in all land classes except Classes V-VI; and forest land decreased in all land classes except Classes IV through VI. Other rural nonfederal lands (minor land cover/uses) including farmsteads; other land in farms; mines, quarries, and pits; small built-up areas; and other rural lands increased in acreage. This minor land cover/use increase in acreage was primarily in Classes V-VIII. All land classes decreased in acreage except Class IV.

Trend Table (1967-1982) by Capability and Land Cover/Use for Nonfederal Rural Lands

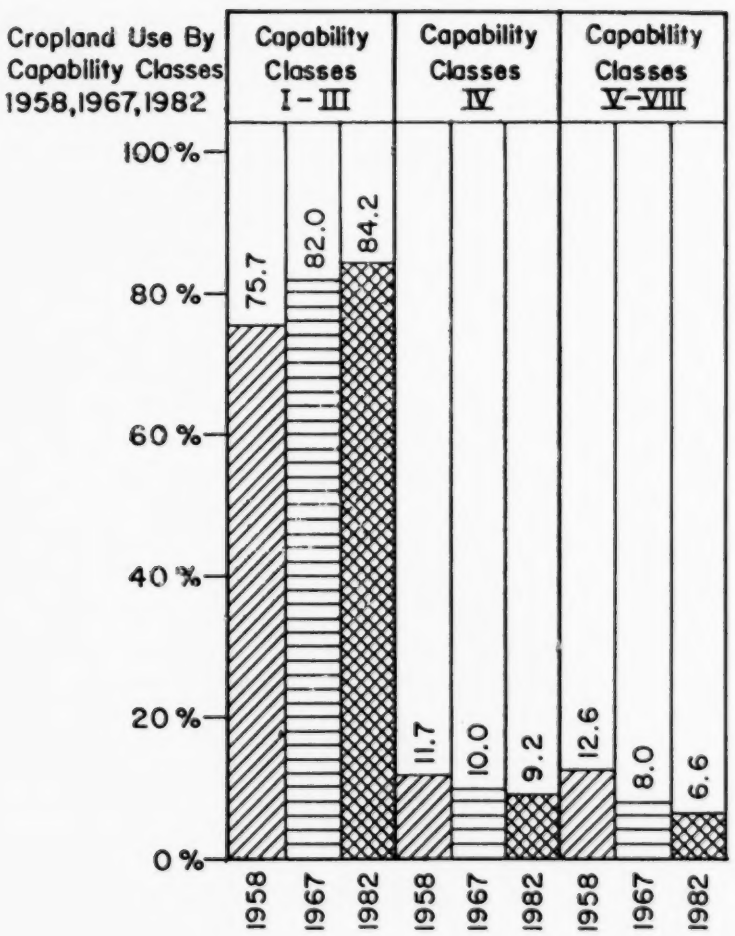
Land Class by Year	Cropland	Pastureland	Forestland	Other*	Total
			acres		
I					
1967	714,679	189,125	167,559	38,257	1,109,620
1982	647,600	294,600	141,000	22,000	1,105,200
II					
1967	2,960,565	1,074,019	523,297	248,110	4,805,991
1982	2,772,400	1,216,400	413,700	181,500	4,584,000
III					
1967	1,728,186	1,088,464	853,173	152,761	3,822,584
1982	1,578,900	1,369,400	733,900	99,900	3,782,100
IV					
1967	659,887	767,132	727,110	77.047	2,231,176
1982	547,500	936,800	868,500	52,400	2,405,200
V & VI					
1967	371,332	1,329,325	1,533,043	66,391	3,300,091
1982	302,000	1,287,800	1,595,900	102,600	3,288,300
VII & VIII					
1967	152,090	716,815	7,183,984	185,140	8,238,029
1982	85,800	774,800	6,405,200	326,400	7,592,200
TOTAL					
1967	6,586,739	5,164,880	10,988,166	767,706	23,507,491
1982	5,934,200	5,879,800	10,158,200	784,800	22,757,000

*In 1982 inventory 109,200 acres of "other" land was not assigned a capability rating and was excluded from this table.

CROPLAND TRENDS BY LAND CAPABILITY CLASS

Since 1958, the percentage of cropland on better land has increased while the percentage has decreased on the marginal and poor land. Cropland use of Class I-III land in the state increased from 75.7 percent in 1958 to 84.2 percent in 1982. Cropland use of Class IV land (suitable for limited row crop use) dropped from 11.7 percent in 1958 to 9.2 percent in 1982. The use of land for crops in Classes V-VIII (land unsuitable for cultivation) dropped from 12.6 percent to 6.6 percent over the same period.

Land Capability Class	1958		1967		1982	
	Acres	%	Acres	%	Acres	%
I-III	5,161,600	75.7	5,403,430	82.0	4,998,900	84.2
IV	795,300	11.7	659,887	10.0	547,501	9.2
V-VIII	857,229	12.6	523,422	8.0	387,800	6.6

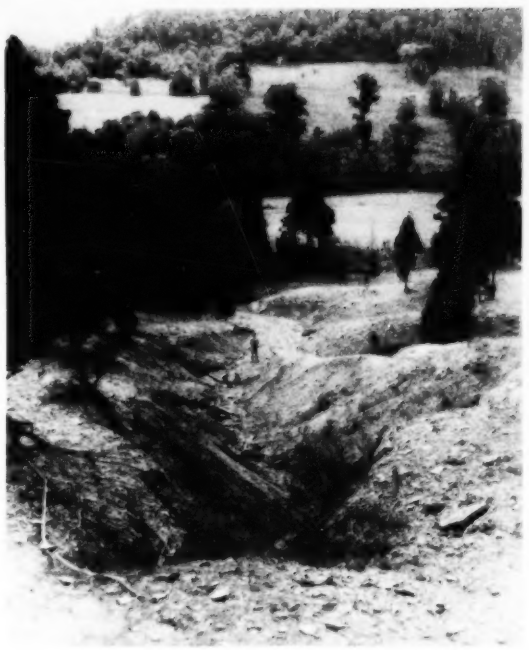


SHEET & RILL EROSION ON RURAL NONFEDERAL LANDS, 1982

In 1982, Kentucky's estimated annual sheet and rill erosion totalled almost 150 million tons. The overall erosion rate was 6.5 tons per acre. The most soil loss was in the "other" or minor land cover/use category (including farmsteads, mines, quarries, pits, other land in farms, and other rural land but excluding small built-up areas) where erosion amounted to 38.4 percent of the total. This was an average annual rate of more than 72 tons per acre. Cropland had about 38.3 percent of the total amount of soil loss. Pastureland and forest land each had about 17 million tons of soil loss caused by sheet and rill erosion. (See table.)

Sheet and rill erosion on cultivated cropland accounted for more than 97 percent of the total soil loss on all cropland and had an average erosion rate of 11.7 tons per acre. Annual soil losses per acre usually should not exceed 3 to 5 tons, depending on the kind of soil; consequently, overall soil loss on cultivated cropland was more than double the amount of soil loss tolerance (T). (The T factor is the tons per acre per year of soil loss that a soil can tolerate and yet maintain productivity). For all cropland, all the land capability classes had an average erosion rate higher than tolerated (except Class I and Class V which are nearly level.)

Overall, pastureland in Class VII and grazed forest land in Class VI and VII exceeded T. The minor land cover/use category had excessive erosion rates in Class IV, VI, and VII (subclass VIIIe had a rate of more than 250 tons per acre).



See the following tables:

ESTIMATED SHEET & RILL EROSION ON RURAL NONFEDERAL LAND FOR 1982
(Excludes small built-up areas)

LAND USE	ACRES	TOTAL TONS/YEAR	RATE - TONS/ACRE/YEAR
Cropland	5,934,200	56,537,300	9.5
Pastureland	5,879,800	16,838,800	2.9
Forestland	10,158,200	17,566,000	1.7
Other (Including farmsteads, mines, quarries, etc.)	784,800	56,654,800	72.2
TOTAL	22,757,000	147,596,900	6.5

Estimated Average Annual Sheet and Rill Erosion on All 1982 Cropland, by Land Capability Class and Subclass

Class and Subclass	Sheet and Rill Erosion		
	1,000 acres	1,000 tons	tons/acre
I	647.6	1,622.3	2.5
IIe	2,078.8	13,730.0	6.6
IIw	651.3	1,962.7	3.0
IIs	42.3	98.9	2.3
All Class II	2,772.4	15,791.6	5.7
IIIe	1,131.8	12,763.8	11.3
IIIw	441.9	1,541.1	3.5
IIIs	5.2	10.8	2.1
All Class III	1,578.9	14,315.7	9.1
IVe	505.5	11,373.4	22.5
IVw	37.5	180.4	4.8
IVs	4.5	2.2	0.5
All Class IV	547.5	11,556.0	21.1
V	0.7	1.9	2.7
VIe	270.9	10,429.2	38.5
VIw	0.0	0.0	0.0
VIs	30.4	310.8	10.2
All Class VI	301.3	10,740.0	35.7
VIIe	68.7	2,133.9	31.1
VIIw	0.0	0.0	0.0
VIIs	17.1	375.9	22.0
All Class VII	85.8	2,509.8	29.3
VIII	0.0	0.0	0.0
Total	5,934.2	56,537.3	9.5

Estimated Average Annual Sheet and Rill Erosion on 1982 Cultivated Cropland, by Land Capability Class and Subclass

Class and Subclass	Sheet and Rill Erosion		
	1,000 acres	1,000 tons	tons/acre
I	564.6	1,606.9	2.9
IIe	1,728.8	13,546.7	7.8
IIw	601.8	1,960.0	3.3
IIs	34.2	96.8	2.8
All Class II	2,364.8	15,603.5	6.6
IIIe	787.3	12,495.9	15.9
IIIw	417.1	1,533.5	3.7
IIIs	5.2	10.8	2.1
All Class III	1,209.6	14,040.2	11.6
IVe	349.7	11,094.0	31.7
IVw	36.8	180.3	4.9
IVs	1.3	1.1	0.9
All Class IV	387.8	11,275.4	29.1
V	0.7	1.9	2.7
VIe	142.3	9.893.2	69.5
VIw	0.0	0.0	0.0
VIs	11.5	289.0	25.1
All VI	153.8	10,182.2	66.2
VIIe	28.5	2,046.9	71.8
VIIw	0.0	0.0	0.0
VIIs	12.2	370.0	30.3
All Class VII	40.7	2,416.9	59.4
VIII	0.0	0.0	0.0
Total	4,722.0	55,127.0	11.7

Estimated Average Annual Sheet and Rill Erosion on 1982 Pastureland, by Land Capability Class and Subclass

Class and Subclass	Sheet and Rill Erosion		
	1,000 acres	1,000 tons	tons/acre
I	294.6	62.9	0.2
IIe	984.9	493.1	0.5
IIw	194.5	49.7	0.3
IIs	37.0	7.1	0.2
All Class II	1,216.4	549.9	0.5
IIIe	1,263.5	1,572.3	1.2
IIIw	104.6	30.1	0.3
IIIs	1.3	9.0	6.9
All Class III	1,369.4	1,611.4	1.2
IVe	906.9	2,103.0	2.3
IVw	17.6	2.9	0.2
IVs	12.3	9.7	0.8
All Class IV	936.8	2,115.6	2.3
V	7.5	6.1	0.8
VIe	1,045.0	4,789.1	4.6
VIw	0.0	0.0	0.0
VIs	235.3	837.7	3.6
All Class VI	1,280.3	5,626.8	4.4
VIIe	566.4	5,538.3	9.8
VIIw	0.0	0.0	0.0
VIIs	208.4	1,327.8	6.4
All Class VII	774.8	6,866.1	8.9
VIII	0.0	0.0	0.0
Total	5,879.8	16,838.8	2.9

Estimated Average Annual Sheet and Rill Erosion on All 1982 Forest Land, by Land Capability Class and Subclass

Class and Subclass	Sheet and Rill Erosion		
	1,000 acres	1,000 tons	tons/acre
I	141.0	15.1	0.1
IIe	231.7	56.5	0.2
IIw	150.0	30.7	0.2
IIs	32.0	2.9	0.1
All Class II	413.7	90.1	0.2
IIIe	551.0	357.2	0.7
IIIw	170.4	25.7	0.2
IIIs	12.5	14.7	1.2
All Class III	733.9	397.6	0.5
IVe	841.3	889.2	1.1
IVw	24.9	1.8	0.1
IVs	2.3	0.4	0.2
All Class IV	868.5	891.4	1.0
V	9.2	1.4	0.2
VIe	1,380.0	2,731.8	2.0
VIw	0.0	0.0	0.0
VIs	206.7	374.9	1.8
All Class VI	1,586.7	3,106.7	2.0
VIIe	4,723.4	9,690.0	2.1
VIIw	9.5	0.2	0.0
VIIs	1,672.3	3,373.5	2.0
All Class VII	6,405.2	13,063.7	2.0
VIII	0.0	0.0	0.0
Total	10,158.2	17,566.0	1.7

Estimated Average Annual Sheet and Rill Erosion on 1982 Grazed Forest Land, by Land Capability Class and Subclass

Class and Subclass	Sheet and Rill Erosion		
	1,000 acres	1,000 tons	tons/acre
I	8.9	2.7	0.3
IIe	14.6	9.4	0.6
IIw	11.6	6.4	0.6
IIs	6.5	2.2	0.3
All Class II	32.7	18.0	0.6
IIIe	56.2	120.3	2.1
IIIw	18.4	1.3	0.1
IIIs	0.0	0.0	0.0
All Class III	74.6	121.6	1.6
IVe	102.4	482.5	4.7
IVw	0.0	0.0	0.0
IVs	0.0	0.0	0.0
All Class IV	102.4	482.5	4.7
V	0.0	0.0	0.0
VIe	272.5	1,769.7	6.5
VIw	0.0	0.0	0.0
VIs	36.4	214.2	5.9
All Class VI	308.9	1,983.9	6.4
VIIe	333.1	4,439.9	13.3
VIIw	0.0	0.0	0.0
VIIs	148.2	1,571.3	10.6
All Class VII	481.3	6,011.2	12.5
VIII	0.0	0.0	
Total	1,008.8	8,619.9	8.5

Estimated Average Annual Sheet and Rill Erosion on Other Nonfederal Rural Land Including Farmsteads, Mine, Quarries, etc. (Does not include small built-up land) by Land Capability Class and Subclass

Class and Subclass	Sheet and Rill Erosion		
	1,000 acres	1,000 tons	tons/acre
I	22.0	20.4	0.9
IIe	146.1	697.4	4.8
IIw	34.5	15.3	0.4
IIs	0.9	0.1	0.1
All Class II	181.5	712.8	3.9
IIIe	78.0	454.9	5.8
IIIw	21.9	5.0	0.2
IIIs	0.0	0.0	0.0
All Class III	99.9	459.9	4.6
IVe	50.7	633.1	12.5
IVw	1.7	0.8	0.5
IVs	0.0	0.0	0.0
All Class IV	52.4	633.9	12.1
V	1.2	2.2	1.8
VIe	34.5	320.9	9.3
VIw	0.0	0.0	0.0
VIs	66.9	1,882.1	28.1
All Class VI	101.4	2,203.0	21.7
VIIe	167.9	43,092.0	256.7
VIIw	1.9	0.0	0.0
VIIs	143.3	9,266.3	64.7
All Class VII	313.1	52,358.3	167.2
VIII	13.3	264.3	19.9
Total	784.8	56,654.8	72.2

ESTIMATED ANNUAL SHEET & RILL EROSION IN RELATION TO T VALUES ON RURAL NONFEDERAL LAND COVER/USES
(Except small built-up acres)

Land Cover/Use	< T	T–2T	> 2T	Total/Weighted Avg.
Cropland				
Tons	5,639,500	4,376,900	46,520,900	56,537,300
Acres	3,521,500	788,700	1,624,000	5,934,200
Tons/Acre	1.6	5.6	28.7	9.5
Pastureland				
Tons	3,693,100	2,053,400	11,092,300	16,838,800
Acres	4,824,100	472,300	583,400	5,879,800
Tons/Acre	0.8	4.4	19.0	2.9
Forest land				
Tons	6,941,200	2,066,700	8,558,100	17,606,400
Acres	9,222,100	555,700	380,400	10,158,200
Tons/Acre	0.8	3.7	22.5	1.7
Other				
Tons	323,900	344,800	55,986,100	56,564,800
Acres	419,400	52,100	313,300	784,800
Tons/Acre	0.8	6.6	178.7	72.2
Total Tons	16,597,700	8,841,800	122,157,400	147,596,900
Total Acres	17,987,100	1,868,800	2,901,100	22,757,000
Average Tons/Acre	0.9	4.7	42.1	6.5

CONSERVATION TREATMENT NEEDS

Of all the rural nonfederal land (excluding small built-up areas) in Kentucky in 1982, more than 60 percent needed some type of conservation treatment. These treatment needs include erosion control, drainage, irrigation management, pasture protection, pasture improvement, pasture re-establishment, timber establishment and reinforcement, timber stand improvement, timber crop improvement (including grazing reduction or elimination), and other site related protection.

CONSERVATION TREATMENT NEEDS ON RURAL NONFEDERAL LANDS IN 1982
(excludes small built-up areas)

Land Cover/Use	Adequately Protected	Treatment Needed	TOTAL
	acres		
Cropland	2,854,700	3,079,500	5,934,200
Pastureland	2,438,100	3,441,700	5,879,800
Forest Land	3,216,400	6,941,800	10,158,200
Other	311,500	473,300	784,800
TOTAL	8,820,700	13,936,300	22,757,000

Erosion treatment was needed on more than 3 million acres of rural nonfederal land of which about 2.7 million acres was cropland. About 45 percent of all cropland needed erosion treatment. Almost one-half of the cropland acres needing erosion treatment were Class II soils, and more than one-fourth were Class III soils.

EROSION TREATMENT NEEDS ON RURAL NONFEDERAL LANDS — BY CAPABILITY
(excludes small built-up areas)

Capability	Cropland	Pastureland	Forest Land	Other	TOTAL
	acres				
I	57,800	0	0	600	58,400
II	1,345,800	28,500	4,900	22,800	1,402,000
III	740,600	33,800	9,100	20,600	804,100
IV	349,100	46,500	41,400	19,800	456,800
V	0	0	0	0	0
VI	180,800	61,600	45,500	27,400	315,300
VII	38,700	74,000	84,800	52,200	249,700
VIII	0	0	0	0	0
TOTAL	2,712,800	244,400	185,700	143,400	3,286,300

PRIME FARMLAND — 1982

Prime farmland (land best suited for producing food, feed, fiber, forage, and oilseed crops) totalled more than 6 million acres in Kentucky, which was about 26 percent of the rural nonfederal land. Prime farmland has the soil properties, growing season, and moisture supply to produce sustained high yields of crops without losing its productivity potential. Of the state's prime farmland, about 62 percent was cropland, about 25 percent was pastureland, about 10 percent was forest land, and about 3 percent was other land.

PRIME FARMLAND BY LAND COVER/USE AND LAND CAPABILITY CLASS/SUBCLASS FOR RURAL NONFEDERAL LANDS

Capability Class/Subclass	Cropland	Pastureland	Forest Land	Other	Total
			acres		
I	647,600	294,600	141,000	22,000	1,105,200
IIe	2,050,300	949,500	221,200	107,000	3,328,000
IIw	616,200	164,800	116,200	24,400	921,600
IIs	41,200	33,800	29,900	900	105,800
All Class II	2,707,700	1,148,100	367,300	132,300	4,355,400
IIIe	4,300	2,300	1,600	3,800	12,000
IIIw	397,400	60,600	105,900	14,200	578,100
All Class III	401,700	62,900	107,500	18,000	590,100
Total	3,757,000	1,505,600	615,800	172,300	6,050,700

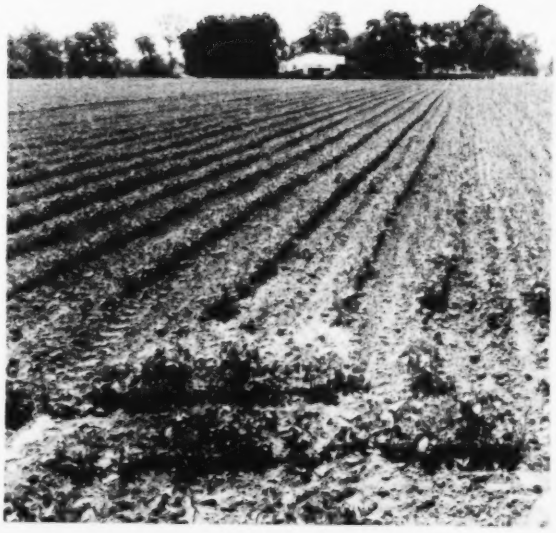
MAJOR LAND RESOURCE AREAS

Major land resource areas (MLRAs) are geographically associated areas, usually several thousand acres in extent, and are characterized by a particular pattern of soils, climate, water resources, and land uses. Kentucky has 6 MLRA's (See Maps on pages 22 and 23).

120 Kentucky and Indiana Sandstone and Shale Hills and Valleys
121 Kentucky Bluegrass
122 Highland Rim and Pennyroyal
125 Cumberland Plateau and Mountains
131 Southern Mississippi Valley Alluvium
134 Southern Mississippi Valley Silty Uplands

Often, Kentucky's MLRAs are colloquially grouped and referred to as follows:

MLRA 120	Western Coalfields
MLRA 121	Bluegrass
MLRA 122	Pennyroyal
MLRA 125	Eastern Kentucky Mountains
MLRA 131 & 134	Purchase



Land cover/use varied among Kentucky's major land resource areas in 1982. Pastureland was dominant in MLRA 121 where horse, beef, and dairy operations prevail. Forest land was dominant in MLRA 125. Cropland was dominant in MLRAs 131 and 134. Cropland and forest land were about equal in area in MLRAs 120 and 122.

The greatest soil loss in 1982 from a particular major land resource area was in MLRA 125 where more than an estimated 60 million tons of soil eroded from almost 7 million acres. More than 2/3 of this total soil loss eroded from about 300,000 acres of "other" or minor land uses. MLRA 134 (about 1.3 million acres in size) had the highest erosion rate, more than 13 tons per acre, and cropland was the largest contributor with an average erosion rate of more than 19 tons per acre.

The average erosion rate on cropland for each MLRA was higher than the soil loss tolerance (T factor). Obviously, the erosion rate for cultivated cropland was even higher, and this increase ranged from nearly 1 to 4 tons per acre more than the overall cropland rate among the MLRAs. MLRA 134 had the lowest percentage (35%) of cropland that had soil loss within the tolerable limits, conversely, MLRA 134 had the highest percentage (65%) of cropland needing erosion treatment. MLRA 122 had the most total acres needing erosion treatment.

For the most part, the acres needing some type of conservation treatment exceeded the number of adequately treated acres for agricultural uses. Overall erosion control was the most significant treatment needed on cropland; however, drainage treatment needs were indicated on more than 1/4 million acres in MLRA 120. Pasture improvement was indicated as the most extensive type of pastureland treatment needed in each MLRA. About 1 million acres of pasture needed improvement in MLRA 121. Timber stand improvement was the most significant treatment need on ungrazed forest land and included more than 3 million acres in MLRA 125. Timber crop improvement (including grazing reduction or elimination) was the most significant treatment need on grazed forest land and included more than 200,000 acres in MLRA 121.

LAND COVER/USE ON RURAL NONFEDERAL LAND BY MLRA

MLRA	Cropland	Pastureland	Forest Land	Other	Total
		acres			
120	1,559,500	816,600	1,465,400	263,300	4,104,800
121	1,365,700	2,441,000	1,115,100	127,800	5,049,600
122	1,840,600	1,658,300	1,979,600	144,000	5,622,500
125	396,700	755,100	5,262,600	313,400	6,727,800
131	46,200	8,800	26,000	1,100	82,100
134	725,500	200,000	309,500	44,400	1,279,400
Total	5,934,200	5,879,800	10,158,200	894,000	22,866,200

SMALL WATER BODIES AND SMALL PERENNIAL STREAMS BY MLRA

MLRA	Water Bodies < 40 Acres	Perennial Streams < 660' Wide	Total
	acres		
120	21,000	17,400	38,400
121	27,900	35,400	63,300
122	14,800	24,700	39,500
125	8,300	41,100	49,400
131	800	0	800
134	7,600	6,900	14,500
Total	80,400	125,500	205,900

ESTIMATED SHEET AND RILL EROSION ON RURAL NONFEDERAL LANDS BY MLRA

(Excludes small built-up areas)

MLRA	120	121	122	125	131	134
Cropland						
Acres	1,559,500	1,365,700	1,840,600	396,700	46,200	725,500
Tons	15,177,700	8,242,200	14,995,500	3,879,700	290,300	13,951,900
Tons/Ac.	9.7	6.0	8.2	9.8	6.3	19.2
Pasture Land						
Acres	816,600	2,441,000	1,658,300	755,100	8,800	200,000
Tons	1,188,400	6,632,300	3,578,400	4,610,600	67,800	761,300
Tons/Ac.	1.5	2.7	2.2	6.1	7.7	3.8
Forest Land						
Acres	1,465,400	1,115,110	1,979,600	5,262,600	26,000	309,500
Tons	1,636,200	3,756,100	3,093,800	8,725,500	21,500	332,900
Tons/Ac.	1.1	3.4	1.6	1.7	0.8	1.1
Other Land						
Acres	247,500	104,800	121,600	270,200	900	39,800
Tons	10,564,700	210,000	857,700	43,434,200	1,300	1,586,900
Tons/Ac.	42.7	2.0	7.1	160.8	1.4	39.9
TOTAL/Avg.						
Acres	4,089,000	5,026,600	5,600,100	6,684,600	81,900	1,274,800
Tons	28,567,000	18,840,600	22,525,400	60,650,000	380,900	
Tons/Acres	7.0	3.8	4.0	9.1	4.7	13.1

ESTIMATED SHEET & RILL EROSION IN RELATION TO "T" ON AGRICULTURAL LANDS BY MLRA

ACRES < T

MLRA	Cropland	Pasture	Forest
	acres		
120	962,700	719,400	1,374,800
121	931,900	1,917,700	824,800
122	1,038,600	1,465,000	1,828,700
125	295,000	555,100	4,870,000
131	39,100	7,200	24,500
134	254,200	159,700	299,300
Total	3,521,500	4,824,100	9,222,100

T–2T

MLRA	Cropland	Pasture	Forest
	acres		
120	168,200	67,300	56,500
121	152,200	242,400	126,300
122	297,100	80,100	92,800
125	38,700	72,200	272,700
131	1,500	0	600
134	131,000	10,300	6,800
Total	788,700	472,300	555,700

> 2T

MLRA	Cropland	Pasture	Forest
	acres		
120	428,600	29,900	34,100
121	281,600	280,900	164,000
122	504,900	113,200	58,000
125	63,000	127,800	119,900
131	5,600	1,600	900
134	340,300	30,000	3,400
Total	1,624,000	583,400	380,300

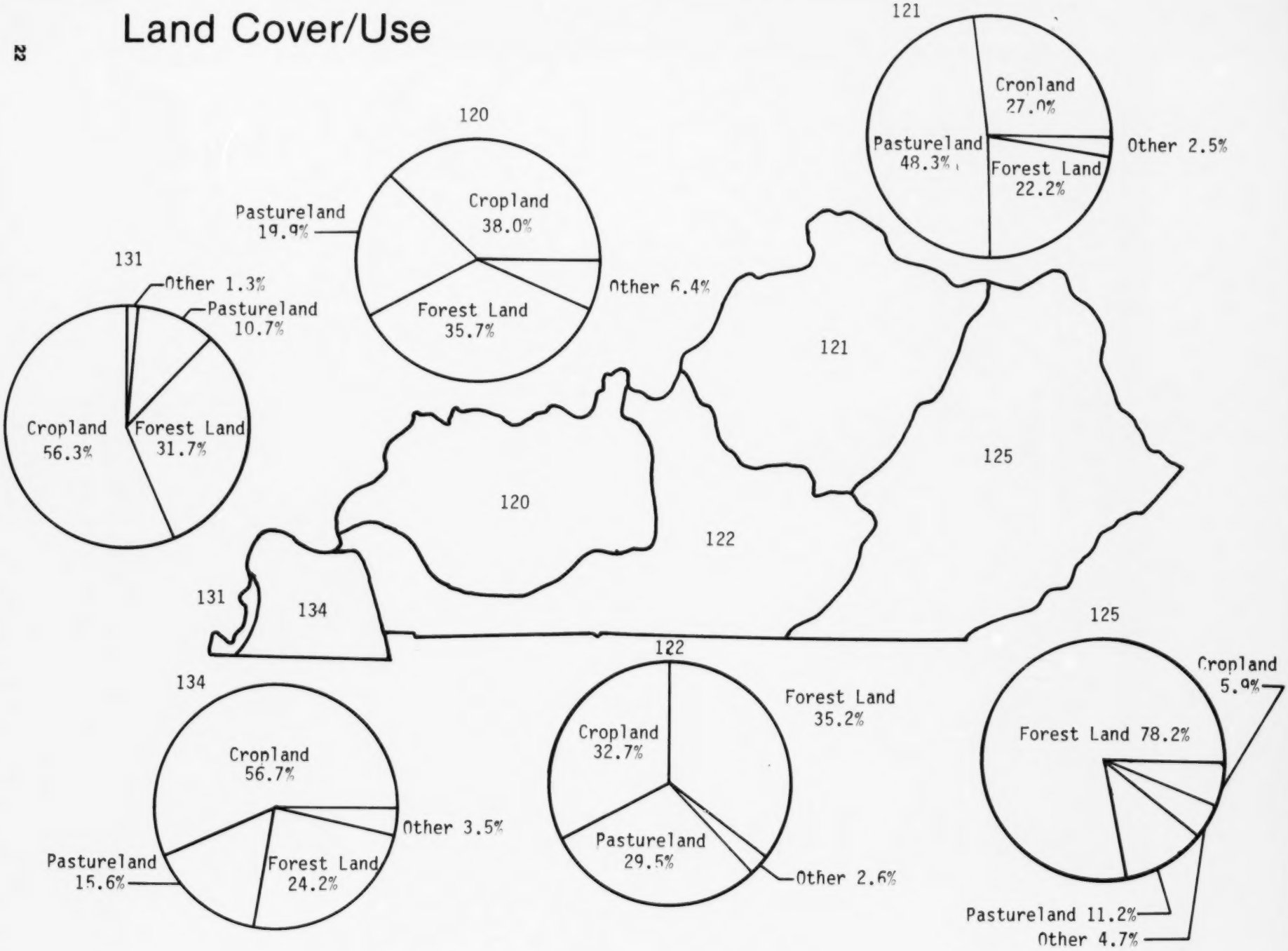
CONSERVATION TREATMENT NEEDS ON RURAL NONFEDERAL LAND BY MLRA
(excludes small built-up areas)

MLRA	120	121	122	125	131	134	TOTAL
				acres			
Cropland							
Adequately Protected	683,000	841,000	796,600	271,700	36,000	226,400	2,854,700
Treatment Needed	876,500	524,700	1,044,000	125,000	10,200	499,100	3,079,500
Pastureland							
Adequately Protected	338,800	989,200	792,200	232,500	5,600	79,800	2,438,100
Treatment Needed	477,800	1,451,800	866,100	522,600	3,200	120,200	3,441,700
Forest Land							
Adequately Protected	456,300	211,200	877,700	1,529,400	11,600	130,200	3,216,400
Treatment Needed	1,009,100	903,900	1,101,900	3,733,200	14,400	179,300	6,941,800
Other Land							
Adequately Protected	65,900	81,300	83,100	55,800	400	25,000	311,500
Treatment Needed	181,600	23,500	38,500	214,400	500	14,800	473,300

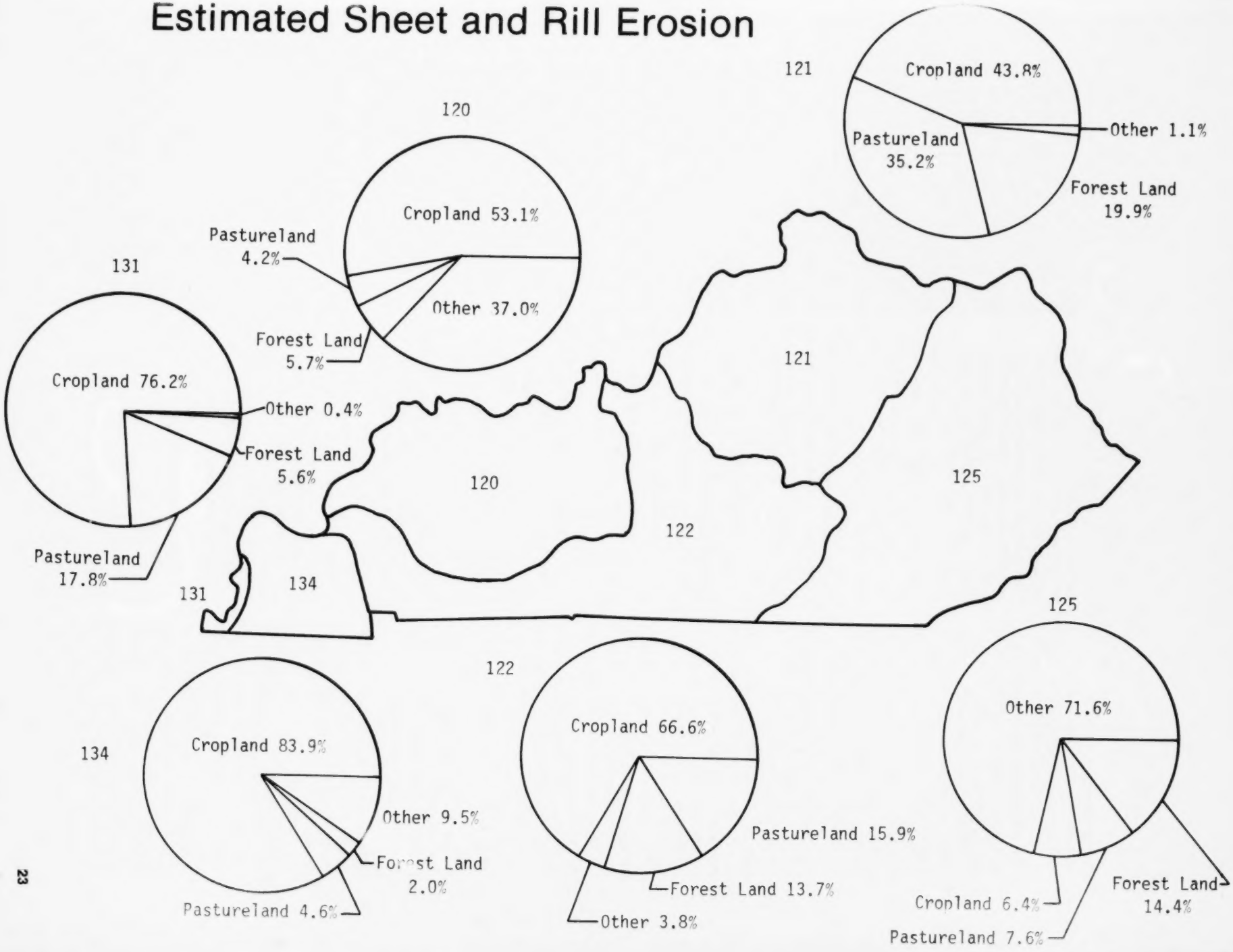
EROSION TREATMENT NEEDS ON RURAL NONFEDERAL LAND BY MLRA
(excludes small built-up areas)

MLRA	120	121	122	125	131	134	TOTAL
				acres			
Cropland	615,600	503,400	1,014,600	102,700	6,600	469,900	2,712,800
Pastureland	67,300	58,100	56,700	46,300	0	16,000	244,400
Forest Land	25,800	20,600	97,000	32,900	0	9,400	185,700
Other Land	52,700	14,300	27,300	43,900	0	5,200	143,400
Total	761,400	596,400	1,195,600	225,800	6,600	500,500	3,286,300

Land Cover/Use



Estimated Sheet and Rill Erosion



Glossary

A-D

Barren land. Areas that have limited capacity to support life and that have less than 10 percent vegetative cover. In general, barren areas have sand, rocks, or thin soil. Vegetation, if present, is more widely spaced and scrubby than that in rangeland. Examples include dry salt flats, active dunes, mud flats, beaches, bare exposed rock, strip mines, quarries, gravel pits, and borrow pits.

Build-up land. (See Urban and built-up land.)

Canopy cover. The ground area covered by the vertical projection downward of the leaves and branches of the tops or crowns of plants, usually expressed as a percent of the area.

Canopy cover is used in the '82 NRI (1) under pasture and rangeland as canopy cover, woody: the percent of ground area covered by the perimeter of the aerial part of trees and shrubs; and (2) under forest land as canopy cover, trees: the percent of the ground area covered by the perimeter of the aerial part of trees.

Conservation practices. Measures used to meet specific needs in carrying out soil and water conservation programs for which standards and specifications have been developed. Definitions, standards, and specifications are included in the National Handbook of Conservation Practices.

Critical eroding areas. Sites that are losing excessive amounts of soil and producing high sediment yields. Stabilizing critical eroding areas usually requires complex conservation treatment and management in addition to vegetative practices. Examples are denuded or gullied areas such as may occur on cropland, mine spoil, skid trails, roadside ditches, and cuts or fills.

Cropland. Land used for the production of adapted crops for harvest, alone or in rotation with grasses and legumes, includes row crops, small grain crops, hay crops, nursery crops, orchard crops, and other similar specialty crops.

Crop production land. Land used for the production of food, feed, forage, oil, horticulture, and fiber crops other than wood.

Degree of erosion. The relative extent of soil loss that has occurred in an area. Resource inventories divide erosion into the following degrees:

Degree of erosion

None or slight - Accelerated erosion has not greatly altered the thickness and character of the A horizon. There may be a few rills or places with thin A horizons that indicate slightly accelerated erosion is taking place.

Moderate - Accelerated erosion has reduced the thickness and character of the A horizon. In cultivated areas, the soil has been eroded to the extent that ordinary tillage implements reach through the remaining A horizon, or well below the depth of the original plowed layer in soils with thin A horizons. Approximately 25 to 75 percent of the original surface soil has been removed by erosion from most of the area. There may be a few shallow gullies or scoured out areas.

Severe - The soil has been eroded to the extent that all or practically all of the original surface soil has been removed. The surface layer consists essentially of materials from the B horizon or other underlying horizons. Severe gullying or scouring is included.

E-H

Erosion. The wearing away of the land surface by raindrop splash, flowing water, wind, or other geological agents including gravitational creep. Erosion is sometimes classified (1) as **natural** or geologic erosion or as **accelerated** erosion, which is induced by activities of man, (2) by primary agent: **wind** or **water** erosion, (3) by degree: **slight, moderate,** or **severe,** (4) by the resulting surface characteristic: **sheet, rill,** or **gully** erosion, and (5) by the type of land eroding: e.g. **streambank** erosion, **cropland** erosion, **roadside** erosion. (See Degree of erosion.)

Farmstead. That part of a farm or ranch that is occupied by the dwellings, buildings, adjacent yards or corrals, and family gardens and orchards. Land in farmsteads includes land used for barns, pens, corrals, and feedlots next to buildings, farmstead or feedlot windbreaks, and family gardens associated with operating farms and ranches. Commercial feedlots, greenhouses, broiler facilities, etc., are not recorded as farmsteads. Also exclude overnight pastures for livestock and field windbreaks.

Forest land. Land at least 10 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for non-forest use. The minimum area for classification of forest land is 1 acre and must be at least 100 feet wide.

I-L

Land capability class and subclass. A grouping of soils according to their potential and limitations primarily for sustained production of crops and pasture. The capability class is the broadest group that classifies soils from I to VIII according to the risks of land damage or limitations in use. The risk of soil damage or limitations in use become progressively greater from class I to class VIII. The subclass is a group of soils that have the same major conservation problem such as — "e" erosion, "w" wetness,

"s" soil condition, or "c" climate. For coding on resource inventories, capability class and subclass are shown by Arabic numeral and capital letter, such as 6E. For details, see Land-Capability Classification, U. S. Department of Agriculture, Soil Conservation Service, Agricultural Handbook 210, September 1961.

Land cover/use. A descriptive term used in the resource inventory that includes land cover such as forest land, barren land, urban and built-up land, water bodies, rural transportation land, and land use such as pastureland and other land in farms.

Land use. See Use of land.

Livestock grazing land. Land used primarily to pasture or herd cattle, sheep, goats, and other foraging animals.

M-O

Major land resource area. A group of geographically associated land resource units. A land resource unit is an area of several thousand acres that is characterized by particular patterns of soil, climate, vegetation, water resources, land use, and type of farming. For details see Land Resource Regions and Major Land Resource Areas of the United States, U. S. Department of Agriculture, Soil Conservation Service, Agriculture Handbook 296, December 1965, Revised December 1981.

Nonarable land. Areas not suited for cultivation or tillage.

Other land in farms. Areas of farms that are not classified as cropland, pastureland, forest land, barren lands, built-up land, or rural transportation. Other land in farms includes field windbreaks, commercial feedlots, greenhouses, nurseries, broiler facilities, farm landing strips, etc., not associated with farmsteads. Lanes to farmsteads are classified as rural transportation land and excluded from other land in farms.

Other lands. A category of land cover and land use in the resource inventory that includes permanent snow and ice fields and any other land that does not fit into any other land cover or use category in the inventory.

P-S

Pastureland. Land used primarily for production of adapted, introduced, or native forage plants for livestock grazing. Pastureland may consist of single species in a pure stand, grass mixture, or a grass-legume mixture. Cultural treatment in the form of fertilization, weed control, reseeding, or renovation is usually a part of pasture management in addition to grazing management.

Pond. A small body of water. In the resource inventory, a pond is any body of water less than 2 acres.

Primary sample unit (PSU). A sample unit at the first stage of sampling in a multistage sampling plan. In the resources inventory, the PSU is a tract of land, typically square or rectangular, that is approximately 160 acres in size.

Prime farmland. Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. The present land use could be cropland, pastureland, forest land, or other land, but not urban or built-up land or water.

Prime farmland soils meet all the following criteria: (1) have adequate and dependable water supply from precipitation or irrigation, (2) have a favorable temperature and growing season, (3) have acceptable acidity or alkalinity, (4) are not saturated with water during the growing season, (5) have low salt and sodium content, (6) are not flooded during the growing season, (7) are not highly erodible, (8) are permeable to air and water, and (9) contain few or no coarse fragments. More detailed criteria for prime farmland are given in the Federal Register, Vol. 43, No. 21, Tuesday, January 31, 1978.

Reservoir. Impounded body of water in which water is controlled, collected, or stored. In the resource inventory, a reservoir is a manmade body of water larger than 2 acres.

Soil loss tolerance (T). The maximum average annual soil loss expressed as tons per acre per year that will permit high level production economically and indefinitely.

T-W

Treatment needs. Changes in land use, management, and conservation practices required to protect the land and water resources.

Urban and built-up land. Land used for residences, industrial sites, commercial sites, construction sites, institutional sites, public administrative sites, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures and spillways, etc. Highways, railroads and other transportation facilities are counted as part of urban and built-up land if they are surrounded by other urban areas. If roads or railroads form the boundary of an urban area, one-half of the area is counted as urban and one-half as rural transportation. Small parks (less than 10 acres in size) within built-up areas are included with urban and built-up land.

In the resource inventory, urban and built-up land is in contiguous units of 40 acres or larger. Generally the density averages one or more residences or other structures per 1.5 acres; in strip developments the

density is 20 or more residences or other structures per mile.

Does not include strip mines, borrow pits, gravel pits, and farmsteads. Also does not include commercial feedlots, greenhouses, broiler facilities, etc., as they are a part of the agricultural land.

Use of land. The kind of activity that takes place on the land. Examples are crop production, timber production, recreation, grazing, and residential use. A particular land use may have a number of different land covers. For example, an area used for recreation may have a land cover of forest or grass.

Universal Soil Loss Equation (USLE). An erosion model designed to compute the longtime average soil losses from sheet and rill erosion under specified conditions. It does not predict deposition and does not compute sediment yields from gully, streambank, and streambed erosion. The soil loss equation is A = RKLSCP, where A is the computed soil loss per unit area, R is the rainfall factor, K is the soil erodibility factor, L is the slope length factor, S is the slope steepness factor, C is the cover and management factor, and P is the support practice factor. Details are in the publication: USDA-SEA. 1978. Predicting Rainfall Erosion Losses. Agricultural Handbook 537.

Water bodies. The area of the Earth's surface covered by open permanent water such as lakes, ponds, reservoirs, bays, and estuaries.

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